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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/558,266 | 04/25/2000 | Nobuyuki Kambe | N19-12-0033 | 8988 |

7590

09/25/2002

WESTMAN CHAMPLIN & KELLY P A
International Centre
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EXAMINER

FERGUSON, LAWRENCE D

ART UNIT

PAPER NUMBER

1774

10

DATE MAILED: 09/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/558,266 | KAMBE ET AL. | |
| | Examiner | Art Unit | |
| | Lawrence D Ferguson | 1774 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-16 and 41-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4-6 and 41-53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This action is in response to the amendment mailed July 09, 2002.
Claims 2-3 and 30-40 were canceled and claims 1, 4-8 and 41-43 were amended rendering claims 1, 4-16 and 41-53 pending.

Claim Rejections – 35 USC § 112, first paragraph

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 4-16 and 41-53 rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 was amended to incorporated 'separate, *selected* islands covering a portion of the layer in an integrated assembly'. Applicant asserts that the 'selected' characteristic of 'separate islands' is described in Applicants' specification in for example page 39, lines 5-23 and page 45, line 32 to page 46, line 22). No such feature is disclosed in Applicants' specification rendering separate, 'selected' islands to be new matter.

Claim Rejections – 35 USC § 103(a)

3. Claims 1, 4-8, 11-12 and 15-16, 41-43 and 45-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Debe et al. (U.S. 5,879,827) for the reasons set forth in paragraph 19, in the previous office action, mailed July 18, 2001. Debe does not explicitly disclose the range average particle diameter of the particles or photonic band gap. Because the reference has the same materials with the same function as applicants, it would have been obvious to one of ordinary skill in the art that the particle diameter photonic band gap would be in the range as claimed. The range of average particle size is an optimizable feature. It is obvious to optimize the components in a composition. *In re Aller* 105 USPQ 223.

Claim Rejections – 35 USC § 102(b)

4. Claims 1 and 8-12 are rejected under 35 U.S.C. 102(b) as being unpatentable over Alivisatos et al. (U.S. 5,751,018).

Alivisatos discloses self-assembled bifunctional organic monolayers as bridge compounds exposed to solutions of nanocrystals that are organized into an assembly of clusters (abstract, lines 1-14). Alivisatos discloses inorganic surfaces such as metals and oxides (column 2, lines 37-39) and thin layers of metal or metal oxides (column 5, line 7). The reference further discloses inorganic surfaces (column 5 line 67 through column 6, line 1) having fluorescence (column 13, line 16) with bridging moieties having two functional groups (column 13, lines 44-46).

R s p o n s t o A r g u m n t s

5. Applicant's remarks to 35 USC 112, second paragraph have been considered and overcome the rejection due to amendment and deletion of the indefinite claim language.

Applicant's arguments to 35 USC 102(b) as being anticipated by Clark et al. (U.S. 4,728,591) have been overcome due to amendment of claim 1 incorporating inorganic particles, which Clark et al. lacks.

Applicant's arguments to 35 USC 103(a) as being unpatentable by Clark et al. (U.S. 4,728,591) have been overcome due to amendment of claim 1 incorporating inorganic particles, which Clark et al. lacks.

Applicant's arguments to 35 USC 103(a) as being unpatentable by Debe et al. (U.S. 5,879,827) have been considered but are unpersuasive. Applicant maintain that Debe does not overcome Applicants' claimed invention with respect to discrete islands. Applicant states the *claimed* invention is directed to a structure with two scales of organization including a plurality of islands having an activation/deactivation process defining the spatial extent of the domains where Debe discloses a structured material formed by various deposition processes where the materials do not self-assemble and alleges the reference does not teach or suggest inorganic particles.

Examiner disagrees because Debe in fact shows self-assembled layers as well as discrete islands in column 10, lines 15-17 and column 12, lines 65-66) and the catalyst material is considered to be self-assembled because there is no outside force to help

with the assembly. Furthermore, Debe discloses inorganic materials (column 10, line 14 and 56) along with materials capable of forming self assembled layers (column 10, line 62).

Applicant's arguments to 35 USC 102(b) as being anticipated by Alivisatos et al. (U.S. 5,751,018) have been considered but are unpersuasive. Applicant argues the claimed invention is more clarified in that the islands are selected and are not a random manifestation of partial coverage. Examiner respectfully disagrees because the reference discloses self-assembled monolayers organized into an assembly of clusters and Figure 4 supports a plurality of separate islands. Furthermore, Claim 1 was amended to incorporated 'separate, *selected* islands covering a portion of the layer in an integrated assembly,' which has been rendered as new matter, resulting in Applicant's argument directed towards a clarified limitation of 'selected' islands as moot.

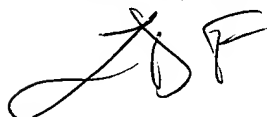
Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Ferguson whose telephone number is (703) 305-9978. The examiner can normally be reached on Monday through Friday 8:30 AM – 4:30PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on (703) 308-0449. Please allow the examiner twenty-four hours to return your call.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for

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After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2351.

A handwritten signature in black ink, appearing to be 'L.D.F.' with a stylized flourish.

Lawrence D. Ferguson
Examiner
Art Unit 1774

CYNTHIA H. KELLY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

A handwritten signature in black ink, appearing to be 'Cynthia H. Kelly' with a stylized flourish.